

**ECONOMICS 2
INTRODUCTION TO ECONOMICS**

PROBLEM SET 5

DUE AT THE BEGINNING OF LECTURE ON TUESDAY, MAY 6TH.

You may work together on the problems, but the answers must be written up in your own words. For all questions be sure to explain your answers and to use graphs or other tools whenever appropriate.

1. Suppose that the components of planned aggregate expenditure (PAE) take the following specification:

$$\begin{aligned}C &= 500 + 0.6Y \\I^p &= 1000 \\G &= 2000 \\NX &= 500\end{aligned}$$

- a. Graph the expenditure line corresponding to this specification, the 45-degree line, and the equilibrium level of total output in the short run.
 - b. Now solve the example algebraically to determine the equilibrium level of total output in the short run. (Think of the two equations represented in your diagram above: $Y = PAE$ and $PAE = f(Y)$. Substitute the second into the first and then solve for Y . If you need more help, see pp. 753-755 of the textbook.)
 - c. Suppose that government purchases (G) decrease to 1000. Show what will happen to total output in the short run both graphically and algebraically.
 - d. Why does output fall by more than the decrease in G ?
2. Suppose that the economy begins at potential output. Now, firms permanently lower their expectations of the future marginal revenue products of capital.
- a. Use the condition for choosing the profit-maximizing level of new capital purchases to show what this change in expectations will do to investment at a given real interest rate.
 - b. Use the three-part diagram (reaction function, Keynesian Cross, and AD/SRAS diagrams) to show the effect, if any, of the change in firms' expectations on output, inflation, and the real interest rate in the short run. Explain your analysis.
 - c. Now show how the economy returns to potential output. Be sure to show on the 3-part diagram what happens in both the medium run and the long run, and explain why. (For simplicity, throughout this problem you should assume that potential output is constant, rather than growing over time.)
 - d. What effect, if any, will the permanent change in firms' expectations have on the long-run real interest rate and normal investment? (You should analyze this using the long-run saving and investment diagram, and then discuss how the results are consistent with those you derived from the 3-part diagram in part (c).)

- e. Graph the behavior of total output, inflation, the real interest rate, investment, and consumption over time. Draw a separate graph for each series. These graphs should have the variable of interest on the vertical axis and time (measured as the initial period, short run, medium run, and long run) on the horizontal axis. You obviously are not expected to show actual numbers on these graphs; all you are trying to show is how the series behave qualitatively over time.

3. True, False, or Uncertain. For each of the following decide if the statement is true, false, or uncertain, and explain why. Your analysis determines your grade.

- a. A shift up in the Federal Reserve's reaction function implies a rise in the target rate of inflation.
- b. An adverse inflation shock will shift the aggregate demand (AD) curve to the left.
- c. A fall in the price of the dollar that is expected to be permanent will have no effect on the quantity of American goods and services that foreigners buy.

4. What would you expect each of the following developments to do to the price of dollars in Euros?

- a. GDP growth is more rapid in Europe than in the United States.
- b. American real interest rates fall, while European real interest rates stay the same.
- c. The United States places tariffs on a number of goods from Europe (while Europe does not change its trade policy).
- d. Inflation is higher in the United States than in Europe.